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FOREST INSECT INVESTIGATIONS

F. C. Craighead, Entomologist in Charge

800-7-11

Doctor Craighead has just returned from a three weeks' trip in the Western States, during which he attended a conference of the western men at Klamath Falls, Oreg. On the way out a day's stop was made at St. Paul, Minn., to discuss, with Doctor Riley and Doctor Graham, plans for cooperative work with the University of Minnesota. One day was spent at the Northern Rocky Mountain Station, Coeur d'Alene, Idaho, with Mr. Evenden; a day each at the Forest Service District offices at Portland, Oreg., and San Francisco, Calif., and at the Forest Insect Station at Palo Alto, Calif. The remainder of the time was devoted to meetings at Klamath Falls. Those present were Doctor Burke, Messrs. Miller, Edmonston, Keen, Evenden, Patterson, Hauge and Person. Plans were laid for concentrating all work for the next few years on barkbeetle problems, to meet the increasing demand for our service on this important problem. Coordination of efforts on both control and investigative work will be a feature of the new plan under the regional leadership of Mr. Miller and Doctor Burke. More direct contact between the District Forest offices and Forest Insect field stations will also be arranged.

The conference was entertained on two occasions - once by the Klamath Falls Rotary Club and again by the Chamber of Commerce, where expressions of appreciation were voiced for the services the Bureau is rendering timberland owners in the protection of their forests from barkbeetles. Messrs. Craighead, Miller, and Evenden spoke of various phases of the Bureau work.

The excellent support the Bureau is receiving from the Forest Service and timberland owners is very encouraging.

On November 28, 1923, Dr. F. E. Snyder visited the Naval Aircraft Factory, U. S. Navy Yard, Philadelphia, Pa., to outline cooperative experiments in steaming, in kiln, lumber infested with *Lyctus* powder-post beetles. Various temperatures from 120° to 180° F. are to be tested to determine fatal temperatures. R. A. St. George supervised these steaming tests from December 11 to 14, at the Naval Aircraft Factory.

Mr. St. George visited a wood-turning factory at Front Royal, Va., to determine the results of cooperative tests to prevent attack by wood-boring insects.

Doctor Snyder inspected telephone poles in the vicinity of Norfolk, Va., December 15 and 16, to determine the distribution of and extent of damage by the northern Florida termite *Kalotermes approximatus* Snyder. This nonsubterranean wood-boring termite has not yet become a pest in Virginia.

Species of Kalotermes so extensively damage the tops of telephone poles as to necessitate impregnating the entire pole, cross arms, etc., with coal-tar creosote.

Dr. A. G. Böving represented the branch of Forest Insects at the Cincinnati meetings of the American Association for the Advancement of Science. Doctor Craighead attended the meetings of the Society of American Foresters at Baltimore, Md.

SOUTHERN FIELD-CROP INSECT INVESTIGATIONS

J. L. Webb, Entomologist Acting in Charge

B. R. Coad, of Tallulah, La., spent most of the month in Washington, making a trip to New York to attend the meeting of the Arsenic Committee composed of representatives of arsenic and calcium arsenate manufacturers, of the Bureau of Entomology, and of the Geological Survey, on December 6 and 7. Mr. Coad is chairman of this Standing Committee. J. L. Webb, Elmer Johnson, and C. M. Smith also attended the open session of the committee on December 7. A comprehensive statement concerning the arsenic situation was issued by the committee, of which the following is a brief summary.

The consumption of calcium arsenate in 1923 was about 31,000,000 pounds, practically double the consumption of 1922. The total stock on hand at the end of the season of 1923 was about 3,000,000 pounds.

Under reasonably favorable conditions, including a minimum spread in price and a considerable amount of early buying, the demand for calcium arsenate may again double in 1924.

A price of 10 cents per pound for calcium arsenate to the consumer is out of the question, since the imported and domestic arsenic from which it is made has been selling for prices little if any below that figure. Were it possible for manufacturers to sell calcium arsenate profitably at 11.5 to 13.5 cents a pound (f. o. b. factory), the demand would be from 65,000,000 to 75,000,000 pounds; were the price to be 16 cents, the demand would drop to 35,000,000 or 40,000,000 pounds.

General imports of white arsenic during the first 10 months of 1923 amounted to 3,384 short tons - a rate of about 10,000 short tons a year. Imports for consumption during the first half of 1923 amounted to 5,674 short tons, a little more than half the suggested rate for the year. If this rate continues until July 1, 1924, imports available for the "cotton year" will be about 10,000 tons, which, added to domestic production, gives a total possible supply of 28,000 tons of white arsenic, whereas the requirements based on 11.5 cents to 13.5 cents a pound for calcium arsenate call for about 15,000 tons, and minimum requirements for other arsenic compounds call for about 10,000 tons more. The possible supply for the coming season, therefore, is equal to the possible demand.

J. N. Tenhet, whose permanent station is Quincy, Fla., spent the month at the main tobacco insect laboratory at Clarksville, Tenn.

In a report just received at the Washington office from the Clarksville laboratory the statement is made that since the establishment of the laboratory the acreage of tobacco per man in that region has been raised from 3 to 5 or 6, and in some cases as high as 7 to the man. This is due in most part to improved methods of hornworm control, for which the laboratory is largely responsible. The quality of the tobacco raised by these improved methods is also improved and the saving to the growers runs into millions of dollars.

T. E. Holloway attended the annual meeting of the inspectors of the Mississippi Plant Board at Starkville, Miss., during December, and, at the request of Professor Harned, gave brief talks on the sugar-cane moth borer and its control in Mississippi and on miscellaneous sugar-cane insects.

T. C. Barber has returned from a trip into Mexico. He reports finding several new parasites of the sugar-cane moth borer, one of which seems to be very efficient.

CEREAL AND FORAGE INSECT INVESTIGATIONS

G. A. Dean, Entomologist in Charge

The following note, written by George W. Walcott, Entomologist of the Insular Experiment Station, Rio Piedras, P. R., has been received from F. Muir of the Hawaiian Sugar Planters' Experiment Station:

"I have been doing some work on the food of lizards, and the most interesting thing found is that one of the important elements of food of the common grass-inhabiting lizard, Anolis pulchellus, is the chinch bug. The chinch bug is not a pest of corn or cane in Porto Rico, although I have rarely seen it on injured shoots of the latter, and in one dry section of the island it is sometimes abundant on guinea grass close to the ocean. In Santo Domingo, in a moderately dry section, I have observed it as quite a serious pest of corn and rice. But the fact that these lizards ate so many chinch bugs, where one ordinarily sees none, would appear to indicate that they form an important, if not the most important factor in their natural control."

A closely related species of Anolis inhabits the southeastern part of the United States, and it would be of interest to learn whether this species is known to feed on the chinch bug.

P. R. Myers, in charge of the Carlisle, Pa., laboratory of Cereal and Forage Insect Investigations visited Washington December 6, for consultation.

A new motion picture relating to corn borer control in the Corn Belt States will be ready for distribution probably about January 20. It is expected that this film will be used extensively in the educational campaign to be carried on by the extension forces of Ohio during the winter and spring of the present year.

TRUCK CROP INSECT INVESTIGATIONS

J. E. Graf, Entomologist Acting in Charge

E. Graywood Smyth, Special Field Agent, connected with Truck Crop Insect Investigations for more than a year and a half, most of which time he spent in Mexico investigating parasites and natural enemies of the Mexican bean beetle, has returned to New York, having completed the temporary special work for which he was engaged.

C. H. Popencoe, of the Silver Spring laboratory, is taking special work at the University of Maryland.

C. F. Stahl, Riverside, Calif., has been authorized to proceed to Washington for conference with Bureau and Department officials regarding work with the beet leafhopper, Eutettix tenella. Mr. Stahl expected to stop en route at Cincinnati to attend the meetings of the American Association for the Advancement of Science.

J. E. Graf attended the meetings of the American Association for the Advancement of Science at Cincinnati.

FRUIT INSECT INVESTIGATIONS

A. L. Quaintance, Entomologist in Charge

A. J. Flebut, who has been in charge of the Citrus Thrips Project, with headquarters at Lindsay, Calif., has resigned, effective January 1, 1924, to accept a position with the General Chemical Company, San Francisco. It is understood that he will have charge of the insecticide department of this company, succeeding the late S. W. Foster.

E. J. Newcomer, in charge of codling moth and other apple insect investigations at the Yakima, Wash., station, spent a short time in Washington, but has now returned to his official headquarters.

O. I. Snapp of the Fort Valley, Ga., field station has returned to his headquarters after a short sojourn in Washington, investigating literature and other matters in connection with his work.

Shirley Watson Foster, connected with this office from April 15, 1907, to October 10, 1912, and later manager of the insecticide department of the General Chemical Company, San Francisco, died October 23, 1923, following an operation for intestinal trouble. A more extended account of Mr. Foster will soon appear in the Journal of Economic Entomology.

The following State entomologists came to Washington to attend the Japanese beetle hearing of the Federal Horticultural Board, January 4, 1924: George G. Becker, Little Rock, Ark.; E. N. Cory, College Park, Md.; S. B. Fracker, Madison, Wis.; P. A. Glenn, Urbana, Ill.; C. H. Hadley, Harrisburg, Pa.; T. J. Headlee, New Brunswick, N. J.; S. J. Hunter, Lawrence, Kans.; M. D. Leonard, Albany, N. Y.; and Frank N. Wallace, Indianapolis, Ind. The following also attended: Arthur Gibson, Dominion Entomologist, Ottawa, Canada; L. S. McLaine, Chief, Division of Foreign Pests Suppression, Ottawa, Canada; Wilmon Newell, Plant Commissioner, State Plant Board, Gainesville, Fla.; and C. A. McCue, Director, Agricultural Experiment Station, University of Delaware, Newark, Del.

BEE CULTURE INVESTIGATIONS

E. F. Phillips, Apiculturist in Charge

James I. Hambleton and Dr. E. F. Phillips will attend a meeting of the Maryland State Beekeepers' Association in Baltimore January 9.

A circuit of State Beekeepers' Association meetings, at which James I. Hambleton is to speak, is scheduled beginning January 12 for Richmond, Va., Morgantown, W. Va., and Harrisburg, Pa.

Dr. E. F. Phillips is to take part in a two-day educational meeting for beekeepers at Carbondale, Ill., February 20 and 21.

The American Honey Producers' League will meet in Chicago January 24 and 25.

MISCELLANEOUS INVESTIGATIONS

(Items from the National Museum contributed by S. A. Rohwer)

The Museum has recently temporarily assigned an additional room for use of the Bureau of Entomology, and Harold E. Morrison and his staff have moved into the building, transferring with him the National Collection of Coccidae. Heretofore the collection of Coccidae has been housed in the Insectary of the Bureau. The Museum is a much more satisfactory place to house this valuable and growing collection.

S. A. Rohwer attended the meetings of the American Association for the Advancement of Science held at Cincinnati.

Henry Bird of Rye, N. Y., recently visited the Museum to examine the Lepidoptera of the genus *Papaipema*.

Certain correspondents have kindly replied to Mr. Greene's request for puparia of Sarcophagidae, and he now has 45 species of this family represented by puparia. Mr. Greene is planning a paper illustrating the puparia and giving the structural characters and a key. The paper is progressing rapidly. Additional material would be most acceptable at this time.

Dr. M. D. Leonard of New York State visited the Museum to look over the collection of Diptera and talk with the men in the Section; also to complete arrangements for some cooperative work with Mr. Shannon.

Dr. S. J. Hunter of Kansas spent a few minutes in the Section of Insects talking with Mr. Caudell on certain taxonomic questions in the Orthoptera.

Dr. Arthur Gibson of Canada stopped in the Section to meet some of the men and discuss cooperation, and one or two questions regarding Lepidoptera, with Mr. Busck.

A. J. Mutchler, of the American Museum, spent three days studying the collection of Coleoptera. Mr. Mutchler was especially interested in identifying the collection from the Galapagos Islands. He is working up the material recently collected by the Williams Expedition. Several of his species represented a long series, and it was necessary for him to study the Linell types.

William D. Richardson, an amateur coleopterist of Fredericksburg, Va., died at the State Hospital at Marion, Va., October 31, 1923, after a long illness. After his return from service in France he donated most of his collection of beetles to the National Collection, but retained the families Elmidae and Parnidae for a study which his illness made impossible. While on a visit to friends at the Museum he told of the material he had collected during his military service along the Mexican Border and in France and of its bequest to the National Museum by a provision of his will, but having no entomological friends in Richmond who could understand his interests only seven boxes, probably comprising all of his pinned specimens, were preserved from the cleaning of his room during his long confinement at the hospital. J. Bowie Ferneyhough of Richmond has kindly sent these boxes to the National Museum for safe keeping pending the legal settlement, but manuscripts and notes were not found.

The Richardson collection is chiefly valuable for the fine specimens of small beetles collected at Fredericksburg, Va., between 1891 and 1904.

LIBRARY

Mabel Colcord, Librarian

New Books

Ambruster, H. W.

Arsenic. Calcium arsenate and the boll weevil. Articles and addresses. New York, Barr-Erhardt Press, Inc., 1923. 42 p.

Baker, C. F.

The Jassoidea related to the Stenocotidae, with special reference to Malayan species. (Philippine Jour. Sci., v. 23, no. 4, p. 345-404, 5 pl., 1923.)

Baldensperger, P. J.

Maladies des abeilles... Nice, G. Mathieu, 1922. 26 p. (Librairie de l'Institut Nat. Agron.)

Becker, Theodor.

Dipterologischen Studien; Dolichopodidae der Indo-Australischen Region. 's Gravenhage, M. Nijhoff, 1922. 19 pl. (Capita Zoologica, v. 1, pt. 4.)

Blunck, Hans.

Die entwicklung des Dytiscus marginalis L. vom ei bis zur imago. 2. teil. Die metamorphose (B. Das larven- und das puppenleben). In Zeits. für Wissens. Zool., v. 121, no. 2, p. 171-391, illus. Leipzig, 1923. Literaturverzeichnis, p. 389-391.

Clements, F. E., and Long, F. E.

Experimental pollination; an outline of the ecology of flowers and insects. Washington, published by the Carnegie Institution, 1923. 274 p., 17 pl. (Carnegie Institution of Washington Pub. No. 336.) Bibliography, p. 262-268.

Doncaster agricultural association.

The turnip fly... London, James Ridgway & Sons, 1834. 89 p.

Enslin, Eduard.

Die blattwespengattung Tenthredo L. (Tenthredella Rohwer). Wien, 1920. 95 p. (Abhandlungen Zool. Botan. Gesellsch. Wien., Bd. 11, Hft. 1.)

Evrard, Eugène.

The mystery of the hive. Translated by Bernard Mjall. London, Methuen & Co., Ltd., 1923. 369 p.

Hollande, A. C.

Thèse. L'autohemorrhée ou le rejet du sang chez les insectes (toxicologie du sang). Paris, Masson et cie, 1911. 148 p., illus., pl. v-vii. Index bibliographique, p. 140-145.

Houard, C.

Les zoocécidies des plantes d'Afrique, d'Asie et d'Océanie. Description des galles, illustration. Bibliographie détaillée. Repartition géographique. Paris, Librairie scientifique Jules Hermann, 1922-23. 2 v., illus. Index bibliographique, v. 2, p. 942-995.

Knoll, Fritz.

Insekten und blumen. Wien, Verlag des Zool. Botan. Gesellsch. 1921-22. (Abhandlungen Zool. Botan. Gesellsch. Wien., Bd. 12, Hft. 1-2.) Hft. 1. I. Zeitgemäße ziele, und methoden für das studium den ökologischen

wechselbeziehungen. II. Bombylius fuliginosus und die farbe der blumen (Hft. 1). Hft. 2. III. Lichtsinn und blumenbesuch des falters von Macroglossus stellarum.

Krueger, W. W.

Insect Life. Grand Rapids, Mich., Central High School, 1923. 74 p.
Mahdihassan, S.

Classification of lac insects from a physiological standpoint. 53 p.
Reprinted from the Journal of the Science Association, Maharajah's College, Vizianagaram, v. 1, nos. 2 and 3, p. 47-99. Madras, 1923.

Martini, Erich.

Lehrbuch der medizinischen entomologie. Jena, Verlag von Gustav Fischer, 1923. 462 p., illus. Bibliographies interspersed.

Mast, S. O.

Photic orientation in insects with special reference to the drone-fly, Eristalis tenax, and the robber fly, Erax rufibarbis. In Jour. Exp. Zool., v. 38, no. 1, p. 111-205, illus. August, 1923. Bibliography, p. 201-205.

Reimoser, Eduard.

Katalog der echten spinnen (Araneae) des palaarktischen gebietes. Wien, 1919. 280 p. (Abhandlungen Zool. Botan. Gesellsch., Bd. 10, Hft. 2.) Verzeichnis der arbeiten, p. 205-276.

Stickney, F. S.

The head capsule of Coleoptera. Urbana, Ill., published by the University of Illinois Press, January, 1923. 104 p., 8 pl. (Illinois Biol. Monog., v. 8, no. 1.)